

LANDSCAPE MANAGEMENT MAINTENANCE PLAN

Prepared on behalf of Tai Tarian

10th February 2022

Asbri Planning Ltd have prepared this Landscape Management Maintenance Plan on behalf of Tai Tarian. The document has been created in light of submitting an application to discharge of Condition 11 attached to planning permission P2020/0992. The condition states:

"Prior to the first occupation of any dwelling unit hereby approved, a landscape management plan, including the long-term design objectives, management responsibilities and maintenance schedules, for all landscaped areas, shall have been submitted to and approved in writing by the Local Planning Authority. The landscape management plan shall be implemented and adhered to in accordance with the approved details thereafter."

The following appendices (A - C) comprise the documents required in order to discharge the condition.

Appendix A

Proposed Landscape Works

Appendix B

Landscape Maintenance Plan

Appendix C

Landscape Maintenance Schedule (Operation and Maintenance Requirements for Infiltration Basins)

Appendix D

Landscape Maintenance Schedule (Proprietary Systems Classified on Basins of Main Treatment Process)

Appendix E

Landscape Maintenance Schedule (Operation and Maintenance Requirements for Previous Payments)

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Landscape Maintenance Schedule (Operation and Maintenance Requirements for Bioretention Systems)

Appendix G

Landscape Maintenance Schedule (Operation and Maintenance Requirements for Trees (after CRWA, 2009))

Appendix A - Proposed Landscape Works



Key

- Proposed tree planting
- Proposed planting areas
- Proposed swathe planting areas
- Proposed rain garden planting areas
- Grass areas: to be seeded with Germinel Seeds A19 (All Purpose Landscaping) grass seed mix @ 50g/sq m
- Attenuation basin grass areas: to be seeded with Germinel A4 (Low Maintenance Areas) grass seed mix @ 35g/sq m
- Cycle racks
- Timber bench seats and cubes
- Locally sourced sandstone boulders as seats/natural play
- Concrete play tunnel set into grass mound
- 'Fallen tree' natural play structures
- Proposed levels - see also Architect/Engineer drawings
- Integrated Bat Boxes as Bat Observation Survey Report July 2020, and to be agreed with Ecologist
- Integrated Bird Boxes as Bat Observation Survey Report July 2020, and to be agreed with Ecologist

Plant Schedule

ID	Spacing	No.	Botanical Name	Common Name	Scheduled Size
AC	TREE	6	Acer campestre	Field Maple	Extra Heavy Standard, RB, 14-16cm girth
AJCG	5/m2	132	Ajuga reptans 'Catlin's Giant'	Catlin's Giant Carpet Bugle	CG, 2L
Am	4/m2	55	Alchemilla mollis	Lady's Mantle	10-20cm, CG, 2L
Bp-multi	TREE	10	Betula pendula multistem	Silver Birch multistem	Multi stem, 200-250cm ht, RB
BID	3/m2	54	Berberis thunbergii Dart's Red Lady	Barberry Dart's Red Lady	30-40cm, 2L
CB	TREE	15	Carpinus betulus	European Hornbeam	Extra Heavy Standard, RB, 14-16cm girth,
CCor	SPEC	3	Cotoneaster 'Cornubia'	Cotoneaster 'Cornubia'	1.75 - 2.50m ht., CG, 15L
Cp sedge	3/m2	101	Carex pendula	Pendulous Sedge	CG, 2L
CsMF	1/m2	80	Cornus sanguinea 'Midwinter Fire'	Midwinter Fire Dogwood	40-60cm, CG, 2L
Ctr	2/m2	55	Ceanothus thyrsiflorus var. repens	Creeping Blue Blossom	30-40cm, CG, 2L
De fern	5/m2	121	Dryopteris erythrosora	Copper Shield Fern	30-40cm, CG, 2L
EDS hedge	---	163	Escallonia 'Donard Seedling'	Escallonia 'Donard Seedling'	30-40cm, 3L
EjOA hedge	2.5/linm	144	Euonymus japonicus 'Ovatus Aureus'	Spindle 'Ovatus Aureus'	30-40cm, CG, 3L
GR	---	101	Geranium 'Rozanne'	Rozanne Cranesbill	CG, 2L
HcPP	CLIMBER	17	Hedera colchica 'Paddy's Pride'	Persian Ivy	60-80cm, CG, 3L
HGO	3/m2	104	Hebe 'Great Orme'	Great Orme Hebe	30-40cm, CG, 3L
LaH	4/m2	47	Lavandula angustifolia 'Hidcote'	Hidcote English Lavender	20-30cm, CG, 2L
LnBG	3/m2	98	Lonicera nitida 'Baggesen's Gold'	Poor Mans Box	---
LpS	CLIMBER	15	Lonicera periclymenum 'Serotina'	Late Dutch Honeysuckle	60-80cm, CG, 3L
MsR grass	2/m2	48	Miscanthus sinensis 'Rotsilber'	Red-silver Maiden Grass	30-40cm, CG, 3L
PAP	TREE	8	Prunus avium 'Plena'	Double flowered Cherry	Extra Heavy Standard, RB, 14-16cm girth
Ps fern	4/m2	75	Polystichum setiferum	Soft Shield Fern	30-40cm, CG, 2L
RFCA	3/m2	49	Rosa 'Flower Carpet Amber'	Rose 'Flower Carpet Amber'	30-40cm, CG, 3L
Ro	3/m2	91	Rosmarinus officinalis	Rosemary	30-40cm, CG, 3L
Sa-EHS	TREE	7	Sorbus aucuparia EHS	Mountain Ash EHS	Extra Heavy Standard, 12-14cm, RB
SbT	4/m2	86	Spiraea betulifolia 'Tor'	Tor Birchleaf Spirea	30-40cm, CG, 2L
Sg grass	2/m2	88	Stipa gigantea	Golden Oat Grass	CG, 2L
SI	TREE	8	Sorbus intermedia	Swedish Whitebeam	Extra Heavy Standard, RB, 14-16cm girth
Vb	3/m2	55	Verbena bonariensis	Tall Verbena	CG, 2L
VmM	3/m2	98	Vinca major 'Maculata'	Big Periwinkle	20-30cm, CG, 2L

Landscape Specification Notes

- General Notes
- All landscape works to comply with BS4428:1989 Code of Praticre for General Landscape Operations; BS3882:2015 Specification for Topsoil; BS3989: 1999 'A1:2013 Recommendations for Turf for General Purposes, and all subsequent amendments. All work to be carried out in suitable weather and soil conditions. Any poor site or soil preparation or conditions to be reported to site manager for remediation prior to planting, turfing and seeding
 - All Nursery Stock to comply with BS3936 Part 1:1992 and all subsequent amendments; species in native mixes to be of local provenance unless otherwise agreed.
 - Any proposed substitutions, whether species, cultivar, pot size or other specification, must be approved by landscape architect prior to planting;
 - The landscape contractor to make him/herself aware of any underground and overhead services prior to planting.
 - Prior to placing of soils ensure that the subsoils/substrates in all areas to be planted/seeded are free draining by carrying out percolation tests. Where drainage is impeded carry out suitable remedial operations such as ripping or removal of impermeable material (to be agreed with CA).
 - Topsoil/subsoil: existing topsoil on site may be reused subject to agreement with the landscape architect. Imported topsoil to be provided as necessary to make up any deficiency in quantity and/or quality. Imported topsoil:
 - for planting areas and grass only seeded areas - BS3882 multipurpose grade, sandy loam texture
 - for wild flower turfed and seeded areas - BS 3882 low fertility topsoil or approved subsoil. Existing subsoil may be reused in wild flower grassland areas, subject to agreement with the landscape architect.
 - PAS100 compost: provide certificate and source for approval. Arrange for CA to inspect a sample load of not less than 0.1 cu m prior to any deliveries being made. Retain for comparison with subsequent loads.
- Planting Generally
- Planting generally - plant roots must be protected at all times from sun, frost and winds with planting bags used for all bare root material. All plants to be planted to the root collar and well firmed in the backfill material. Backfill material is to be placed around the roots in such a way as to ensure close contact with the roots.
 - Immediately after planting cut back any damaged, dead or diseased branches, remove any weak, thin or malformed growth. Water plants thoroughly after planting. Watering to continue as required throughout first growing season following planting.
- Tree planting
- Tree pits to be excavated to minimum 1000mm diameter and 600mm depth. Clear all vegetation from pit surface. In sloping ground, maintain horizontal bases and vertical sides with no less than minimum depth throughout. Break up bottom of pits to a depth of 150mm and scarify sides. Pits to be backfilled with a well-mixed combination of 2/3 volume topsoil and 1/3 volume PAS 100 compost.
 - Tree stakes: double stakes for Extra Heavy Standards (EHS), single stakes for Standards and smaller, 75mm dia., two each side/one on single side of tree trunk, driven into base/side of tree/pe at 45 deg, to at least 300mm depth, finished height above ground 700mm. Fix tree firmly but not rigidly to stakes with cushioned tree ties, min. 50mm wide, with correctly fitting rubber spacers between tree and stakes. Spread a 75mm deep (settled) layer of approved bark or wood chip mulch over an area of 1m dia. around each tree position.
- Planting areas (including swathes and rain garden areas)
- Remove surface vegetation, except trees shown for retention, from areas to be planted. Excavate as necessary to receive 400mm depth topsoil. Once soil is spread cultivate to 400mm depth, removing stones and rubbish over 75mm dia. Spread a 50mm layer of PAS100 compost over planting areas and incorporate into top 300mm.
 - Plant at densities shown. Native mixes, including hedges, to be planted in a random mix with species groups of 1 to 3. Setting out of plant mix areas to be agreed with landscape architect.
 - Spread a 75mm deep (settled) layer of approved bark or wood chip mulch over all plant and hedge mix areas after planting; native mix areas do not require mulch.
- Grass Seeding
- Topsoil to be imported where existing material is unsuitable. See General Notes re topsoil grades to be used.
 - Remove all surface vegetation. Cultivate to a depth of 300mm, removing stones and rubbish larger than 50mm dia. Where imported excavate as necessary and provide 150mm depth topsoil. Grade surface and add a 40mm layer of PAS100 compost into the top 150mm. Grade to smooth flowing contours.
 - Reduce the top 25mm to a fine tilth and remove stones and rubbish over 50mm dia. Sow grass seed (see key for seed mixes to be used) at 5g/sq m - in 2 equal sowings in transverse directions. Lightly harrow or rake.
 - Sward establishment: first cut of grass when the sward reaches between 40 and 70 mm ht. Remove stones/rubbish over 25mm dia. and cut grass to 40mm ht. Reseed areas of poor establishment until a sward of minim 95% coverage has been achieved.
- Maintenance over 12 months
- Maintain all planting areas and tree bases free of weeds by chemical and/or mechanical means.
 - Remove any dead trees and replace with equivalent size and species in first 5 years after planting. Remove any other dead plants and replace with equivalent size and species in first year after planting.
 - Water as necessary to establish plants successfully.
 - Check stakes and ties and adjust to avoid damage to trees. Refirm any plants which have worked loose. Replace stakes/ties as necessary and check tree ties regularly. Prune plants according to species, location and season to remove damaged/dead growth and to encourage healthy growth with a well-balanced natural appearance .
 - Maintain mulch at 75mm depth.
 - Maintaining general grass areas: keep a healthy and vigorous grass sward at a height of between 25 and 50mm ht., arisings to be spread evenly over cut areas. Do not cut grass in areas with bulb planting until bulb foliage has died back. Use selective herbicides to control pernicious weeds. Apply turf fertilizer in spring, 15:10:10 NPK at recommended rates.
 - Maintaining attenuation basin areas: no fertilizer to be added to these areas. Year 1: maintain grass at 40-60mm ht., arisings to be spread evenly over cut areas. Year 2 and ongoing: 2 cuts per year cut back to 50mm in late August, arisings to be spread evenly over cut areas. Spot treat pernicious weeds with selective herbicides.

FIONA CLOKE

A S S O C I A T E S

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Client

Hale Construction Ltd

Project

Sandfields Redevelopment

Drawing Title

Proposed Landscape Works

Date

27.05.21

Drawn

FEC

Scale

1:200 @ A0

Project No

788

Drawing No

01

Rev

Appendix B - Landscape Maintenance Plan



Maintenance Plan - (1:250)

LEGEND:-

Proposed Buildings - Maintained by Tai Tarian Ltd.

Proposed Footpaths - Maintained by Tai Tarian Ltd

Proposed Public Open Space - Maintained by Tai Tarian Ltd

Proposed Bio-Retention Trenches - Maintained by Tai Tarian Ltd

Proposed Public Open Space - Maintained by Tai Tarian Ltd

Proposed Infiltration Basins - Maintained by Tai Tarian Ltd

Proposed Parking areas (Permeable) - Maintained by Tai Tarian Ltd

Proposed Bin Stores - Maintained by Tai Tarian Ltd

Proposed Cycle Stores - Maintained by Tai Tarian Ltd

Proposed Private Foul Water Sewer - Maintained by Tai Tarian Ltd

Existing Adoptable Combined Sewer - Maintained by DC/WW

Proposed Surface Water Sewer / Distribution Pipe - Maintained by Tai Tarian Ltd

Proposed Surface Water Sewer / Distribution Pipe - Maintained by Tai Tarian Ltd

Site Boundary

PLEASE NOTE THAT ALL ALIGNMENTS, CONSTRUCTION DETAILS AND TRAFFIC CALMING FEATURES ARE SUBJECT TO APPROVAL BY NEATH PORT TALBOT C.B.C, AND MAY BE SUBJECT TO CHANGE.

PLEASE REFER TO SHEET C-110-2 FOR MAINTENANCE SCHEDULES

1	19.01.21	MAINTENANCE REFERENCES REVISED	RWP
Rev	Date	Description	By
Dimensions to be verified on site. This drawing should not be scaled. Use figured dimensions only. Any discrepancies should be referred to the Engineer prior to work being put in hand. This drawing is copyright.			
QuadConsult Limited Columbus House, Village Way Greenmeadow Business Park Cardiff CF15 7NE 029 2077 9644 contactus@quadconsult.co.uk www.quadconsult.co.uk		QuadConsult ENGINEERS IN PARTNERSHIP Consulting Civil & Structural Engineers	
Client 			
Project SANDFIELDS			
Title Maintenance Plan			
Drawing Status FOR COMMENT			
Designed by RWP	Drawn by RWP	Checked by SM	Date Dec 20
Project No 19083		Drawing No C-110-01	Scale @ A1 size 1:250
Revision 1			Revision

File Name: 19083-01-Maintenance-Plan.dwg

Appendix C - Landscape Maintenance Schedule (Operation and Maintenance Requirements for Infiltration Basins)

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter, debris and trash	Monthly
	Cut grass – for landscaped areas and access routes	Monthly (during growing season) or as required
	Cut grass – meadow grass in and around basin	Half yearly: spring (before nesting season) and autumn
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
Occasional maintenance	Reseed areas of poor vegetation growth	Annually, or as required
	Prune and trim trees and remove cuttings	As required
	Remove sediment from pre-treatment system when 50% full	As required
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realign the rip-rap	As required
	Repair or rehabilitate inlets, outlets and overflows	As required
	Rehabilitate infiltration surface using scarifying and spiking techniques if performance deteriorates	As required
	Relevel uneven surfaces and reinstate design levels	As required
Monitoring	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and pre-treatment systems for silt accumulation; establish appropriate silt removal frequencies	Half yearly
	Inspect infiltration surfaces for compaction and ponding	Monthly

Appendix D - Landscape Maintenance Schedule (Proprietary Systems Classified on Basins of Main Treatment Process)

Proprietary systems	Description	Treatment processes	Leisenring (2012) classification
Proprietary bioretention systems in concrete (or other material) structures	Filtration devices that use soils (or other filter media) and which support plants or bacterial biofilms	Filtration, adsorption, bioremediation	Biological filtration
Treatment channels	Channels that are designed to collect and treat water rather than convey it along the channel; can include proprietary filter media within the channel; can include weir and baffles at intervals to trap oils and floatables	Physical removal of sediment, oils and floatables; wetting and drying to promote degradation	Does not include test results for this type of system (note that there are examples in Europe that are certified by DiBT in Germany)
Hydrodynamic or vortex separators	Structures that use gravity and centrifugal force to separate out and collect medium-sized (63 to 250 μm) sediments and other litter or debris; smaller particles may be able to be removed by varying the flow rate into the system	Physical removal of sediment by gravity	Manufactured device – physical
Proprietary filtration systems	Devices that filter water by passing it through various filter media; they are constructed below ground in chambers and do not support vegetation	Filtration and adsorption	Filtration
Oil separators	Structures designed to separate gross amounts of oil and large size (> 250 μm) suspended solids from water; they do this by allowing light non-aqueous phase liquids (LNAPL) to float and large sediment particles to sink; many also have baffles, coalescers and oil skimmers to speed-up or enhance performance	Physical removal of floatables, physical removal of sediment by gravity	Oil/grit separators and baffle boxes
Multi-process	Systems that include multiple treatment processes in series	Various	Multi-process

Appendix E - Landscape Maintenance Schedule (Operation and Maintenance Requirements for Previous Payments)

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Appendix F - Landscape Maintenance Schedule (Operation and Maintenance Requirements for Bioretention Systems)

Maintenance schedule	Required action	Typical frequency
Regular inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

Appendix G - Landscape Maintenance Schedule (Operation and Maintenance Requirements for Trees (after CRWA, 2009))

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets and outlets	Inspect monthly
Occasional maintenance	Check tree health and manage tree appropriately	Annually
	Remove silt build-up from inlets and surface and replace mulch as necessary	Annually, or as required
	Water	As required (in periods of drought)
Monitoring	Inspect silt accumulation rates and establish appropriate removal frequencies	Half yearly